



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Group Art Unit: 1775

Examiner: Archene A. Turner

Serial No.: 09/728,942

Filed: December 1, 2000

In re Application of: John M. Pinneo

For: FILLED DIAMOND FOAM MATERIAL AND METHOD OF FORMING
SAME

DECLARATION OF JOHN MICHAEL PINNEO

Director of Patents
Washington, D.C. 20231

Dear Sir:

I, John Michael Pinneo, hereby declare and state as follows:

1. I currently reside at 124 Santa Maria Avenue, Portola Valley, California, 94028.
2. I hold a B.A. in Psychobiology with Highest Honors from the University of California at Santa Cruz, 1973, a Ph. D. in Biology from the University of California at Santa Cruz, 1977, and a J.D. from the University of California at Berkeley, Boalt Hall, 1981. I am a member of the California Bar, Bar Number 101891.
3. I have been an active, full-time participant in the field of CVD diamond for commercial use since 1984, when I founded the first company in the United States to develop technology to manufacture diamond by CVD methods and to manufacture products for sale using that material. I hold over 36 U.S. and foreign patents in the field of CVD diamond. Practitioners regard me as an expert in the commercial diamond industry regarding diamond CVD methods and the commercial application thereof. Because of my education and experience, I believe myself to be a person of ordinary skill in the art of CVD diamond deposition.

4. I am the named inventor of the subject matter in the above-identified patent application. I am employed by P1 Diamond Inc., assignee of the above-identified patent application.

5. I have read and understand the presently outstanding Office Action in the above-identified patent application, mailed on April 24, 2002.

6. I have read and understand the Prior Art reference of Lemelson (U.S. Patent No. 4,960,643).

7. I do not consider the art disclosed by Lemelson as enabling the deposition of diamond within open- or closed- cell materials as disclosed. A person skilled in the art following Lemelson's teaching would direct microwave energy through the substrate material, as taught in Column 8, lines 42-45, inclusive. This would produce either of two results depending on the electrical properties of the substrate, neither of which would include the growth of diamond.

In the first case, for substrates with substantial electrical conductivity, microwave radiation would simply reflect from the substrate material, without the production of a plasma that is a requirement for microwave-assisted diamond deposition. No diamond deposition would occur, either within the interior voids or on the surface. The same principle, exclusion of electric fields from within a conductive volume, is at work in the exclusion of microwaves from a foil-wrapped potato placed in a microwave oven.

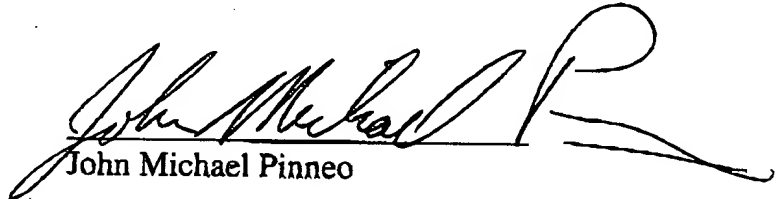
In the second case, for substrates with little or no electrical conductivity, microwaves would traverse the material, heating it through a combination of dielectric losses and plasma heating, depending on the nature of the material and size and disposition of internal void volumes. In this event, the material temperature would rapidly exceed the temperature at which diamond deposition is possible. Under these

conditions, only graphite would be deposited, and then only if the substrate material could withstand the extreme temperature that would result.

Lemelson's teaching does not disclose or imply operable means of diamond deposition that could yield his claimed result.

8. I further declare that all statements made of my own knowledge are true and all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and may jeopardize the validity or enforceability of a patent issued from this patent application.

8/29/02
Date


John Michael Pinneo